

What is claimed is:

1. An apparatus for measuring heat dissipation of a target heating element, comprising:
    - 5 a reference heating element for emitting heat;
    - a control unit; and
    - a pair of temperature measuring devices for measuring representative temperatures of the target and the reference heating element and transmitting to the control unit signals
    - 10 indicating the representative temperatures,wherein the reference heating element has an outer configuration and sizes substantially identical to those of the target heating element, and wherein the control unit controls the reference heating element such that the
  - 15 representative temperature of the reference heating element becomes substantially identical to that of the target heating element.
2. The apparatus of claim 1, wherein the reference
  - 20 heating element is provided with an electrical heater controlled by the control unit.
3. The apparatus of claim 2, wherein the control unit compares the representative temperatures of the target and
  - 25 the reference heating element and calculates heating value of the reference heating element by using a power supplied

to the electrical heater when the representative temperatures are substantially equal to each other.

4. The apparatus of claim 3, further comprising:

5 a first vessel for accommodating the target heating element;

a second vessel for accommodating the reference heating element;

a first duct connected to the first vessel;

10 a second duct connected to the second vessel; and

a flow generator for drawing heat carrying fluids in the first and the second vessel through the first and the second duct at a same rate,

wherein the temperature measuring devices are  
15 installed at substantially corresponding locations in the first and the second duct, respectively, and measures temperatures of the heat carrying fluids in the first and the second duct as the representative temperatures, and wherein the first and the second vessel are substantially  
20 identical to each other in geometry, and the first and the second duct are substantially identical to each other in geometry.

5. The apparatus of claim 4, wherein the heat carrying  
25 fluids in the first and the second duct are air.

6. The apparatus of claim 3, wherein the temperature measuring devices are attached on surfaces of the target and the reference heating element and measure average surface temperatures of the target and the reference heating element  
5 as the representative temperatures.

7. The apparatus of claim 6, wherein the temperature measuring devices are a thermocouple.

10 8. The apparatus of claim 3, further comprising:  
a duct for accommodating the target and the reference heating element; and

a pair of fins for being in contact with or being attached to the target and the reference heating element,  
15 respectively,

wherein the temperature measuring devices measure temperatures of the fins at substantially corresponding locations of the fins, respectively as the representative temperatures.

20 9. The apparatus of claim 8, further comprising a flow generator for supplying a heat carrying fluid into the duct.

10. A method for measuring heat dissipation of a target heating element, comprising the steps of:

detecting and comparing representative temperatures of

the target heating element and a reference heating element for emitting heat;

controlling the reference heating element such that the representative temperatures of the target and the reference heating element become substantially identical to each other; and

determining a heating value of the reference heating element as the heat dissipation of the target heating element when the representative temperatures of the target and the reference heating element are substantially identical to each other,

wherein the reference heating element has an outer configuration and sizes substantially identical to those of the target heating element.

15

11. The method of claim 10, wherein the representative temperature of the target heating element is measured from a heat carrying fluid which has flown past the target heating element and the representative temperature of the reference heating element is measured from a heat carrying fluid which has flown past the reference heating element.

20

12. The method of claim 10, wherein the representative temperature of the target heating element is an average surface temperature of the target heating element, and the representative temperature of the reference heating element

25

is an average surface temperature of the reference heating element.

13. The method of claim 10, wherein the representative  
5 temperatures of the target and the reference heating element are measured at substantially corresponding locations of fins, which are in contact with or attached to the target and the reference heating element, respectively.

10 14. An apparatus for measuring heat dissipation of a target heating element, comprising:

means for detecting representative temperatures of the target heating element and a reference heating element; and

15 means for comparing the representative temperatures, controlling the reference heating element such that the representative temperatures become substantially identical to each other, and determining heating value of the reference heating element as the heat dissipation of the target heating element when the representative temperatures  
20 are substantially identical to each other,

wherein the reference heating element has an outer configuration and sizes substantially identical to those of the target heating element.